Columbia River Cold Water Refuges Project

NOVEMBER 8, 2017

Welcome

1. Housekeeping
2. Agenda for today
3. The Context to Project and Today's Presentations

AGENDA

9:00 am – 9:25 am	**Introduction** Dru Keenan
9:25 am – 10:40 am	**Columbia Cold Water Refuges and How Fish Use Them** John Palmer
10:40 am – 10:55 am	**Break**
11:55 am – 11:50 pm	**Assessing Sufficiency: HexSim Model** Marcia Snyder, Joseph Ebersole, Nathan Shumaker
11:50 am – 12:45 pm	**Protect, Enhance, and Restore Cold Water Refuges** Jenny Wu
12:45 pm – 1:00 pm	**Closing Remarks, Next Steps**
1:00 pm – 2:00 pm	**Informal Discussion** All

- Salmon require cold rivers and streams to support their diverse life histories
- Columbia River major migration corridor for salmon and steelhead
- Salmon migrating through Columbia during summer months are exposed to temperatures warmer than optimal
- The Columbia River today is significantly different from what it was even 60-100 years ago, but even then the River, though thermally diverse, probably had warm temperatures.
- Yet salmon and steelhead successfully migrated and populations thrived

https://oregonencyclopedia.org/media/uploads/Celilo_Falls_1910_OrHi_66878.jpg

We know that restoring salmon & steelhead populations to healthy levels requires an 'All-of-the-Above' effort

Many efforts by many entities are working to restore salmon, steelhead and other important fisheries in the Columbia Basin

Our project is focused on addressing the conditions of migrating adult salmon/steelhead returning from the ocean to their spawning grounds in the Columbia and Snake Basin

Understanding how salmon once thrived while migrating during warm summer temperatures will assist in addressing the conditions migrating salmon face in the Columbia River today

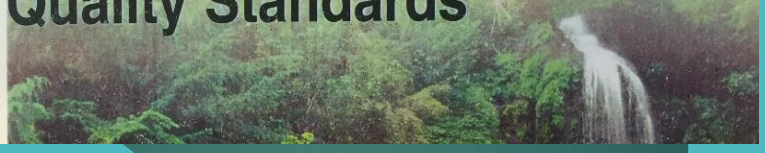
EPA 910-B-03-002

United States Environmental Protection Agency | Region 10 1200 Sixth Avenue Seattle WA 98101 | Alaska Idaho Oregon Washington

Office of Water | April 2003

EPA

EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards



EPA 910-C-12-001

United States Environmental Protection Agency | Region 10 1200 Sixth Ave. Seattle, WA 98101 | Alaska Idaho Oregon Washington

Water Division | Office of Water and Watersheds | February 2012

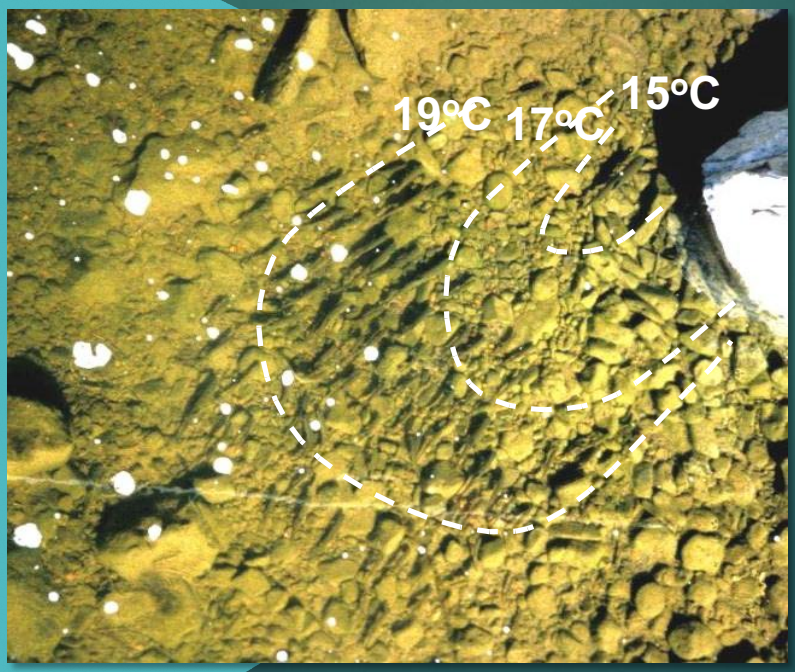
EPA

Primer for Identifying Cold-Water Refuges to Protect and Restore Thermal Diversity in Riverine Landscapes

What are cold water refuges?

General Definition:

- CWR are colder than surrounding areas;
- Provide resources necessary for survival during periods of thermal stress.



Oregon Temperture Water Quality Standard

Columbia & Lower Willamette River Temperature Criteria

- Salmon and Trout Migration Corridor Use
- 20C numeric criteria, plus
- Cold Water Refugia (CWR) narrative criteria
  - "must have CWR that's sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher temperatures elsewhere in the water body"
  - "CWR means those portions of a water body where, or times during the diel cycle when, the water temperature is at least 2C colder than the daily maximum temperature of the adjacent well mixed flow of the water body"
- EPA approved in 2004

NMFS Jeopardy Finding (2015 Biological Opinion)

- NMFS concluded 20C criterion not protective without an effective CWR narrative & Oregon's CWR narrative criteria is not an effective criteria due to lack of implementation
- Jeopardy for Steelhead, Chinook, Sockeye, and Killer Whales
- Reasonable and Prudent Alternative (RPA)
  - ✓ EPA shall develop a Columbia River CWR Plan
  - ✓ Oregon DEQ shall develop a Willamette River CWR Plan
  - ✓ EPA shall work with NMFS, Columbia River Federal Caucus, and the NWPCC to align this work with FCRPS BiOp and Columbia River Fish and Wildlife Program
  - ✓ Columbia & Willamette River CWR plans due by November 2018

Columbia & Willamette Rivers Cold Water Refuges Project

- EPA to develop a Columbia River CWR Plan
- Goal of Project: Characterize and evaluate the sufficiency of CWR habitats for salmon and steelhead migrating through the Columbia River
- Oregon DEQ to develop a Willamette River CWR Plan

CWR Plan Elements

1. Characterize current spatial and temporal CWR
2. Characterize current salmon and steelhead use of CWR
3. Assess whether current CWR is sufficient to meet Oregon's narrative criteria
4. Identity additional CWR needed to meet criteria if current CWR is insufficient
5. Identify programs and actions to protect, enhance and restore CWR areas

Project Scope